

Mapping/Charting in MOPHIMS

One of the features we're most excited about and that are brand new to the MICA side of MOPHIMS is the ability to create charts. In the old system, the MICA query tool only generated data tables and maps and the sole option for graphics was found in the Profiles (where bar charts and trend lines were available). That has all changed with the new system. Now users have the ability to custom create bar charts, trend lines, and even pie charts with the MICA tool.

We go into a lot more detail in our newly revised MOPHIMS training classes, which are discussed in more detail later in the newsletter, but we wanted to share an example here for those of you who've not yet had the opportunity to attend.

The chart options are all found in the Build Your Results section of the MICA query page. The default setting is still Build a Table, shown below, but there are other tabs that allow users to create maps and charts as well as view documentation.

The screenshot displays the MICA query tool interface. At the top, a dark blue navigation bar includes the Missouri Department of Health & Senior Services logo, a home icon, and links to MOPHIMS Home, Profiles, MICA, and EPHT. On the right, there are links for Sign Up and Login. Below the navigation bar, the page title is "Birth MICA". The main content area is divided into two sections. The first section, "Choose Your Data", contains various filters: Year (Single Year(s) selected, 2016), Geography (Statewide), Mother's Age (Single Age, Basic selected, Custom Group), Infant's Sex (All selected (2)), Race (Basic selected, Expanded), Ethnicity (All selected (2)), Select (Indicator selected, Optional Variables), and Indicator (Live Births). A "Reset Your Data" button is located at the bottom right of this section. The second section, "Build Your Results", is highlighted with a red box and contains four tabs: Build a Table (selected), Make a Map, Create a Chart, and Documentation / Metadata. Below the tabs, there are settings for Main Row (Geography), Main Column (Year), Row Totals (checked), Column Totals (checked), Statistics (Counts and Rates), and Confidence Intervals (No Confidence Intervals). A "Submit Query" button is at the bottom.

When users select the Create a Chart tab, a different set of selections are available. The specific types of selections vary depending on what type of chart you wish to create. The default is the vertical bar chart; however, there are a total of four different graphics which can be created including the horizontal bar chart, trend line and pie graph mentioned above.

The screenshot shows the 'Build Your Results' section of the MICA tool. It has four tabs: 'Build a Table', 'Make a Map', 'Create a Chart' (which is active), and 'Documentation / Metadata'. Under the 'Create a Chart' tab, there are several configuration options:

- Type of Chart:** A dropdown menu with options: Vertical Bar (selected), Horizontal Bar, Pie, and Trend Line.
- Variable Axis:** A dropdown menu with options: Rates, Percent, and Trend Line.
- Statistics:** A dropdown menu with options: Rates, Percent, and Trend Line.
- Data Label:** A dropdown menu with options: Disabled, Percent, and Trend Line.
- Note Docking:** A dropdown menu with options: Bottom, Top, and Trend Line.
- Legend Docking:** A dropdown menu with options: Top, Bottom, and Trend Line.
- Value Axis:** A dropdown menu with options: Year, Percent, and Trend Line.
- Note Alignment:** A dropdown menu with options: Near, Far, and Trend Line.
- Legend Alignment:** A dropdown menu with options: Near, Far, and Trend Line.

A 'Create Chart' button is located at the bottom right of the configuration area.

Let's walk through an example using the trend line to graph some maternal and child health risk factors found on Birth MICA to see how they have changed across time. We want to graph how the rates have changed over the past several years for the following indicators: low birth weight, preterm births, smoking during pregnancy and mother's prepregnancy obesity. To do this, we first have to make some selections at the top of the page in the Choose Your Data portion of the tool. The following two images show the selection of 14 years of data and the selection of low birth weight and preterm births from the indicators list. We scrolled further down the list (not shown below) to pick up the smoking and obesity related indicators.

The screenshot shows the 'Choose Your Data' section of the MICA tool. It has a header bar with the Missouri Department of Health & Senior Services logo and navigation links: 'MOPHIMS Home', 'Profiles', 'MICA', and 'EPH'. Below the header, there is a 'Birth MICA' section. The 'Choose Your Data' section contains several configuration options:

- Year:** Radio buttons for 'Single Year(s)' (selected) and 'Multi-Year Groups'.
- Geography:** A dropdown menu with options: Statewide, County, and City.
- Mother's Age:** Radio buttons for 'Single Age', 'Basic' (selected), and 'Custom Group'.
- Infant's Sex:** A dropdown menu with options: All selected (2), Male, and Female.
- Race:** Radio buttons for 'Basic' (selected) and 'Expanded'.
- Ethnicity:** A dropdown menu with options: All selected (2), White, Black, Hispanic, and Other.
- Select:** Radio buttons for 'Indicator' (selected) and 'Optional Variable'.
- Indicator:** A dropdown menu with options: 4 selected, Low Birth Weight, Preterm Births, Smoking During Pregnancy, and Mother's Prepregnancy Obesity.

A '14 selected' dropdown menu is visible, showing a list of years from 2003 to 2016, all of which are checked. The 'Build Your Results' section is visible at the bottom of the page.

Missouri Department of Health & Senior Services MOPHIMS Home Profiles MICA

Birth MICA

Choose Your Data

Year: ☒ Single Year(s) 14 selected ☐ Multi-Year Groups

Geography: Statewide

Mother's Age: ☐ Single Age ☒ Basic All selected (5) ☐ Custom Group

Infant's Sex: All selected (2)

Race: ☒ Basic All selected (5) ☐ Expanded

Ethnicity: All selected (2)

Select: ☒ Indicator ☐ Optional Variables

Indicator: 4 selected

- ☐ Birth Weight: Very Low (less than 1500 g)
- ☒ Birth Weight: Low (less than 2500 g)
- ☐ Birth Weight: Normal (2500-4499 g)
- ☐ Birth Weight: High (greater than 4499 g)
- ☐ Delivery Place: High Risk Deliveries in a Level 2 or 3 Facility
- ☐ Education Status: Less Than 12 Years
- ☐ Gestation: Low Birth Weight and Full Term
- ☒ Gestation: Preterm (less than 37 completed weeks)
- ☐ Gestation: Singleton Births Small

Build Your Results

Build a Table Make a Map

Type of Chart:

Variable Axis:

Statistics:

Data Label:

Note Docking:

Legend Docking:

In the Build Your Results step (shown below), we need to modify the query by setting the Type of Chart as *Trend Line*, the Variable Axis as *Year* and Value Axis as *Indicator*.

Birth MICA

Choose Your Data

Build Your Results

Build a Table Make a Map Create a Chart Documentation / Metadata

Type of Chart: Trend Line

Variable Axis: Year

Value Axis: Indicator

Statistics: Rates

Data Label: Disabled

Note Docking: Bottom

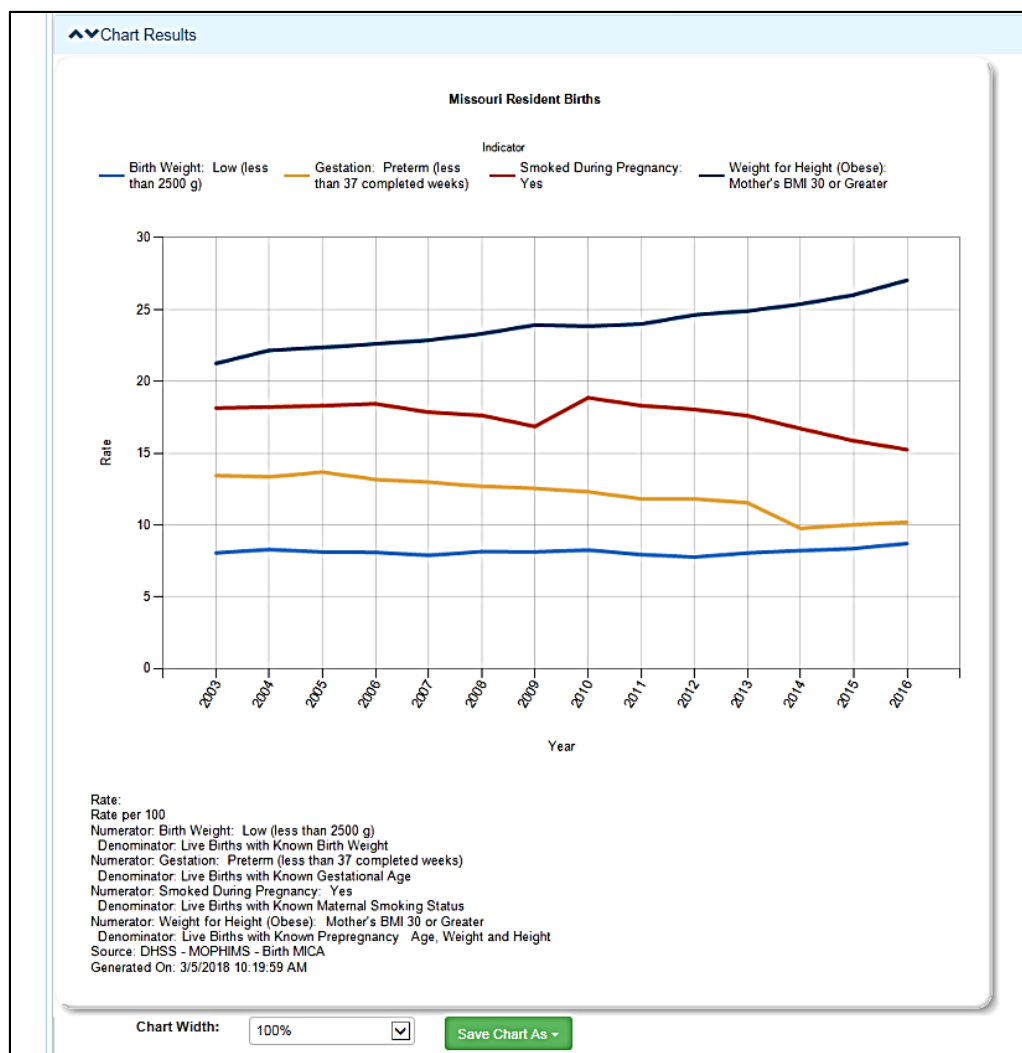
Legend Docking: Top

Note Alignment: Near

Legend Alignment: Near

Create Chart

After clicking the Create Chart button, the following graph is displayed immediately below the query selections.



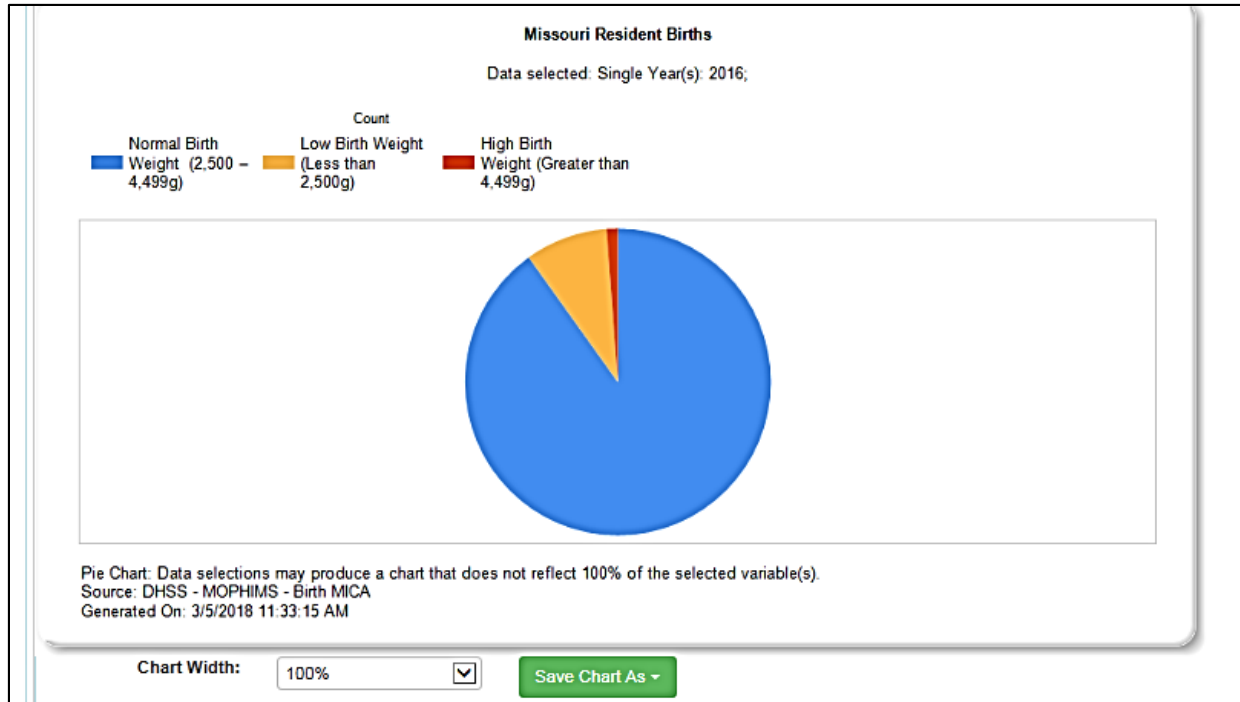
From the graph it becomes clear that the mom's obesity rate has increased over the last decade while the preterm rate and the smoking rate indicators have both declined. The low birth weight rate has mostly remained steady. At the bottom of the chart below the footnotes is a green button that allows users to Save Chart As either a PDF, JPEG or PNG extension that can easily be incorporated into reports and documents.

Below the graph, a data table is automatically produced which allows users to observe the specific numbers that were used to generate the above graph. The green button above and to the left-hand side of the table allows users to download the data table into Excel. This is often desired if you are putting a report together from multiple sources and want all the graphs to look similar.

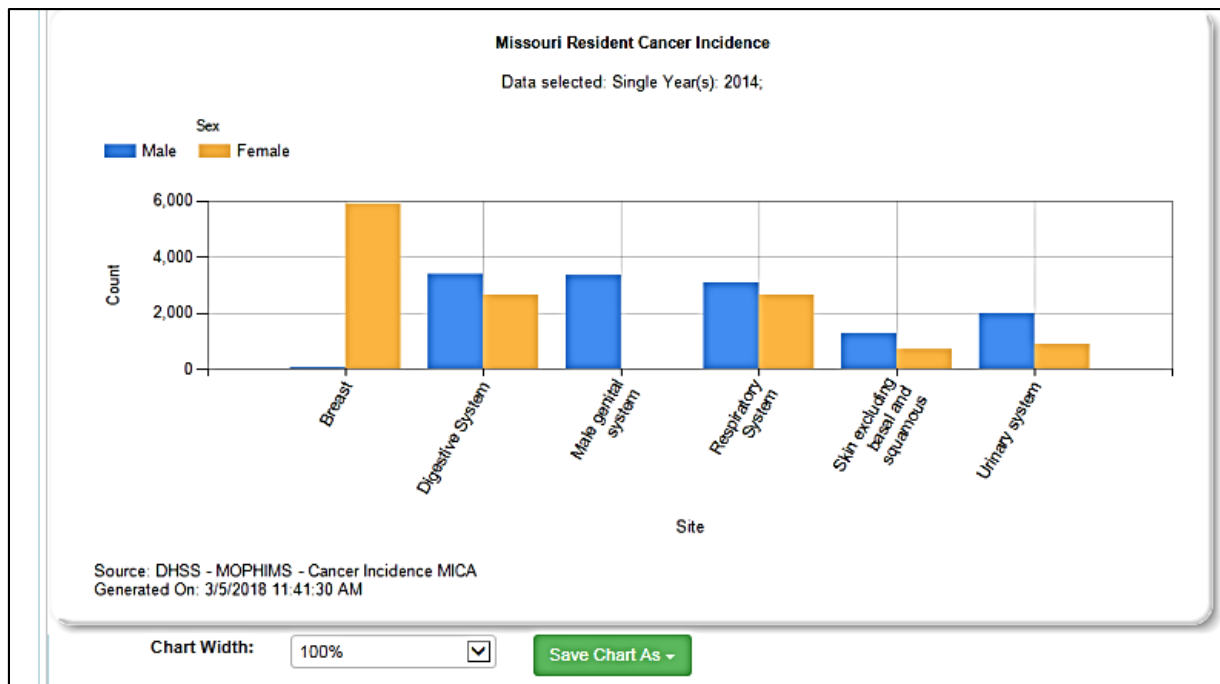
Save Table As ▾		Send Chart to Side by Side						
Title:		Missouri Resident Births						
Data selected in addition to rows and columns below:		None						
Indicator:	Birth Weight: Low (less than 2500 g)	Birth Weight: Low (less than 2500 g)	Gestation: Preterm (less than 37 completed weeks)	Gestation: Preterm (less than 37 completed weeks)	Smoked During Pregnancy: Yes	Smoked During Pregnancy: Yes	Weight for Height (Obese): Mother's BMI 30 or Greater	Weight for Height (Obese): Mother's BMI 30 or Greater
Statistics:	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Year								
2003	6,194	8.05	10,329	13.44	13,895	18.14	15,551	21.25
2004	6,440	8.29	10,352	13.35	14,083	18.21	16,323	22.16
2005	6,368	8.11	10,721	13.68	14,317	18.31	16,655	22.36
2006	6,579	8.09	10,701	13.17	14,946	18.44	17,317	22.61
2007	6,456	7.89	10,612	12.98	14,534	17.85	17,601	22.87
2008	6,585	8.14	10,258	12.69	14,212	17.63	17,721	23.31
2009	6,402	8.12	9,882	12.55	13,233	16.86	17,683	23.93
2010	6,304	8.25	9,432	12.31	14,335	18.86	17,945	23.85
2011	6,015	7.94	8,973	11.82	13,803	18.31	17,814	23.99
2012	5,832	7.76	8,898	11.82	13,507	18.05	18,231	24.63
2013	6,046	8.05	8,671	11.54	13,155	17.61	18,423	24.90
2014	6,163	8.21	7,323	9.76	12,454	16.71	18,814	25.38
2015	6,270	8.36	7,507	10.02	11,802	15.86	19,281	26.02
2016	6,499	8.71	7,595	10.19	11,290	15.25	19,913	27.04
Rate per 100		Numerator: Birth Weight: Low (less than 2500 g) Denominator: Live Births with Known Birth Weight Numerator: Gestation: Preterm (less than 37 completed weeks) Denominator: Live Births with Known Gestational Age Numerator: Smoked During Pregnancy: Yes Denominator: Live Births with Known Maternal Smoking Status Numerator: Weight for Height (Obese): Mother's BMI 30 or Greater Denominator: Live Births with Known Prepregnancy Age, Weight and Height						
Source:		DHSS - MOPHIMS - Birth MICA						
Generated On:		3/5/2018 10:19:59 AM						

While we don't have time or space to show you all the different types of graphs that can be generated in the new MOPHIMS system, the pictures below further illustrate the variety of graphing options available. If you have questions about how to create specific graphs, please reach out to one of the MOPHIMS training members for assistance.

Pie Chart



Horizontal Bar Chart



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MOPHIMS Health Data Trainings- A Successful Winter Tour

Our Data Dissemination Team has been busy! Since our last publication we have conducted five MOPHIMS trainings in three different cities, bringing a wealth of MOPHIMS knowledge to **nearly 75 public health professionals**. Our participants came from many different sectors- we had LPHA employees and administrators, non-profit representatives, and health data analysts from hospital systems. This multidisciplinary group of individuals allowed us to explore many facets of public health and learn from one another. If any of our participants are reading this- thanks so much for sharing your time and expertise!

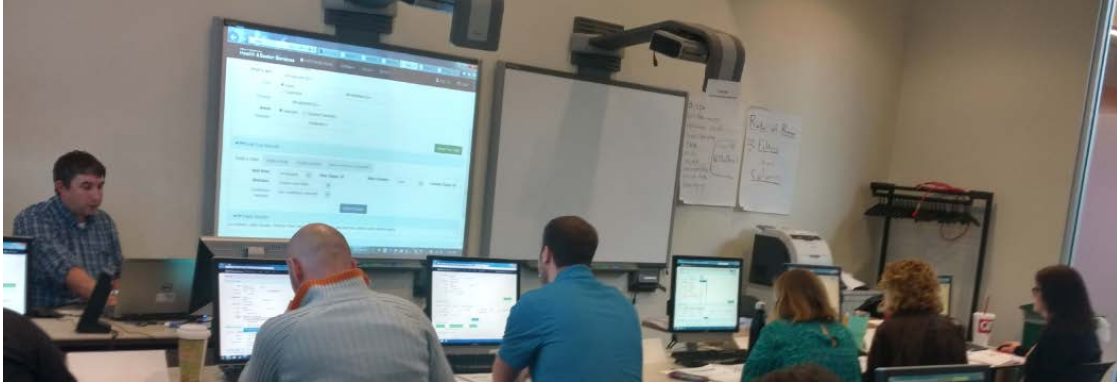
Because we are public health professionals trying something new, we warned our participants that they would be evaluated like crazy, and here are those results! Each participant completed a pre-/post- course knowledge survey about MOPHIMS. There was a **71% improvement** in



comfort of use for both the Data MICAs and the Community Data Profiles. Most exciting, though, was the **84% increase** in those who strongly agree that they will be able to use health statistics and MOPHIMS to

positively impact the work they are doing for their community. This lets us know that these trainings are time well spent for both the participants and the instructors. We also learned about some things that didn't work so well and we're in the process of tweaking those issues before the spring/summer tour.

The knowledge that we're having a positive impact on the public health community reinforces our resolve to hit the road again this spring and summer, dependent on funding. If you'd like to see us at a specific training site, let us know by emailing MOPHIMSUserGroup@health.mo.gov. We prefer to have a computer lab so that the trainings can be interactive, and depending on the size of the lab like to keep classes to 10-20 participants. As soon as training locations and dates are finalized we will share them via an email blast and the Friday Facts, and post registration details on the Health Data Training page of the DHSS website. We welcome any feedback you have about past or future trainings and hope to see many of you as the weather gets warmer!



(Andy shares the wonders of MOPHIMS with participants during the first of our St. Louis courses. We encourage students to follow along during the interactive courses. This is day one of four, when he and Whitney still had voices!)

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Public Health Spotlight

BHCADD is happy to announce a new member to our team, Jeremy Rowles.

Jeremy Rowles joined BHCADD in mid-December, contributing a diverse educational background and a broad range of life experiences to the team.

Jeremy received a Bachelor's in Computer Science from University of Missouri-Kansas City after which he worked as a Computer Systems Analyst for Shelter Insurance in Columbia, MO. One day, he picked up the New York Times and began reading an article about an individual who practiced Applied Anthropology. This piqued his curiosity and he began to develop an interest in Anthropological studies. Jeremy earned a Master's in Cultural Anthropology from the University of Missouri-Columbia and has begun his coursework pursuing his Ph.D.



In the midst of his educational experiences, Jeremy was activated twice and served in Iraq with the Air Force. While deployed in Iraq, Jeremy took note of the diversity of the Iraqi population. His notion of the Iraqi people as a monolithic unit was very much at odds with what existed on the ground. There was a tremendous amount of cultural diversity. For example, there exists a distinct cultural difference between *Turkmen* and *Turkish* ethnic groups, which outsiders could misconstrue as the same group, based on the word "*Turk*." Jeremy also found many of these individuals who lived in Iraq were "very much like me" desiring a job, food, shelter, and to care for their family.

When asked about his own family, Jeremy said he often thinks about his mother whom he lost when he was very young. Throughout his life, Jeremy stated he has tried to think about decisions in terms of, “Would this make my mom proud?” He has used this question as a guiding principle throughout his life.

Jeremy will be primarily analyzing WIC data, in addition to working closely with the MOPHIMS MICA tools, assisting with writing reports, developing presentations, responding to data requests, among other activities. Jeremy stated, “I love people, love data, so this job fits really well with my skill set.”

Jeremy’s experiences have given him a bright outlook. His positive perspective is refreshing. Join us in extending a warm welcome to Jeremy Rowles.

[Here](#) is the article which encouraged Jeremy to pursue Anthropology.

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Upcoming MOPHIMS Trainings

The following is the schedule for upcoming MICA trainings. The first course of the spring/summer season has been scheduled and the training registration surveys for each location are available at <http://health.mo.gov/data/mica/MICA/healthdatatraining.html>. Draft agendas, older versions of course materials, and other details are also posted on this website.

Location:	Course 1-MOPHIMS: Introduction to Profiles and MICA	Course 2-MOPHIMS: Health Data Analysis	Registration Link
Cox Health 525 Branson Landing Blvd Branson, MO 65616	May 17 (Deadline: May 11) Limit: 20 participants	May 18 (Deadline: May 11) Limit: 20 participants	https://www.surveymonkey.com/r/7VPV2FS

We recommend attending these trainings even if you’ve taken the MICA courses previously, in 2015 or before. The MOPHIMS platform is chock full of special features and we want to make sure you have the knowledge necessary to take full advantage of the new system.

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Data Updates

The table below shows the most recent data year available for each MICA. Many of the Profiles have also been updated with newer years of data - take some time to check out the 2015 BRFSS results!

We continue to update the health data every time it is made available to us.

Data MICA	Year
Birth MICA	2016
Cancer Incidence MICA	2014
Chronic Disease Death MICA	2014
Chronic Disease Emergency Room MICA	2015
Chronic Disease Inpatient Hospitalization MICA	2015
Death MICA	2016
Emergency Room MICA	2015
Fertility and Pregnancy Rate MICA	2015
Injury MICA	2015
Inpatient Hospitalizations MICA	2015
Mo Healthnet (Medicaid) MICA	2016
Population MICA	2016
Pregnancy MICA	2016
Preventable Hospitalizations MICA	2015
Procedures MICA	2015
Temporary Assistance for Needy Families (TANF) MICA	2012
WIC Child MICA	2015
WIC Infant MICA	2015
WIC Linked Prenatal-Postpartum MICA	2015
WIC Postpartum MICA	2015
WIC Prenatal MICA	2015

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Recent/Upcoming Events

BHCADD has been extremely busy the last few months. In addition to the multiple MOPHIMS trainings mentioned earlier in this newsletter, our analysts have presented and exhibited at a slew of conferences and meetings recently. You might have seen Andy, Evan, or Teresia at the

**The Opioid Epidemic in
Missouri: What's New in
Surveillance**



Andrew Hunter, Whitney Coffey,
Evan Mobley, and Tanner Turley

Bureau of Health Care Analysis and
Data Dissemination

Missouri Consolidated School Nurse Conference at Lake Ozark or the Million Hearts Conference in Columbia. Kristina, Jeremy, and Whitney recently shared the MOPHIMS system with attendees of the annual Oral Health Conference in Jefferson City.

Not only have our analysts been occupied with MOPHIMS- we've also been actively sharing data related to the nationwide opioid epidemic. Much of this information is available on the [Missouri Opioids Dashboard](#), which was profiled in edition #16 of this newsletter. We traveled to several of the nine opioids summits held across the state. Two BHCADD analysts, Evan and Whitney, also had the opportunity to present some of their work at the International Society for Disease Surveillance annual conference in Orlando. In mid-March our team was the featured speaker for the Missouri Epidemiology Grand Rounds series (Whitney is pictured to the left),



offering analysis on several specific opioid-related topics. You can review that presentation [here](#).

Look for us at the [Teen Pregnancy & Prevention Partnership Conference](#) in Kirkwood, MO on April 20. Andy and Whitney will be hosting an interactive learning session utilizing MOPHIMS to analyze a number of maternal and child health indicators and themes.

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Q & A

I am having trouble in the Data MICAs when changing my selections under 'Choose Your Data'. My 'Age' selections revert back to the default when I change 'Geography'. None of my other selections change back to the default so why is this happening to 'Age'?

You are not doing anything wrong. This is unfortunately a quirk of the system. If you make selections for your query in any MICA and would like to view these same selections for a different geography, you will need to double check your 'Age' category to verify that your initial selections were saved by the system. The default for 'Age' is all ages, so if you generate a table with counts which appear to be higher than expected, be sure to read your data table header to verify you have your desired age category.

Table Results

Save Table As ▾ Send Table to Side by Side

Title: Missouri Resident Injuries

Data selected in addition to rows and columns below: Age: 15 - 17, 18 - 19, 20 - 24; Mechanism: Motor Vehicle Traffic;

Year:	2011	2011	2012	2012	2013	2013	2014	2014	2015	2015	Total for selection	Total for selection
Statistics:	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
City												
Eastern Jackson County	629	1,989.06	625	1,998.40	606	1,954.52	562	1,831.81	608	1,986.41	3,030	1,952.43
Independence	369	2,574.66	324	2,280.41	327	2,330.72	323	2,327.59	355	2,600.54	1,698	2,422.32
Joplin	203	2,464.79	196	2,421.55	163	1,995.10	130	1,572.33	123	1,478.37	815	1,983.55
Kansas City	1,326	2,114.46	1,443	2,309.95	1,440	2,312.62	1,189	1,912.84	1,551	2,472.07	6,949	2,224.77
Total for selection	2,527	2,161.64	2,588	2,230.15	2,536	2,196.20	2,204	1,916.79	2,637	2,286.68	12,492	2,158.54

Rate: Injury rates are annualized per 100,000 residents.

Source: DHSS - MOPHIMS - Injury MICA

Generated On: 3/5/2018 12:40:10 PM

I am doing research on Diabetes and I noticed Preventable Hospitalization for Diabetes in 2015 is a significantly different number than the Inpatient Hospitalization number for the same geography and time period. How can I find more information about both of these MICAs and how they are defining things?

In each MICA query page there are three sections *Choose Your Data*, *Build Your Results*, and *Table Results*. Under the second, *Build Your Results*, there are four tabs, *Build a Table*, *Make a Map*, *Create a Chart*, and *Documentation/Metadata*. If you click on the last tab, *Documentation/Metadata*, there is a blue hyperlink which will take you to the documentation for the specific MICA you entered.

Build Your Results

Build a Table Make a Map Create a Chart Documentation / Metadata

Please click the link to find [Documentation/Metadata](#)

In the case of Preventable Hospitalizations MICA, the following information can be found:

Diagnosis - Preventable Hospitalizations MICA

Home » Data, Surveillance Systems & Statistical Reports » Community Data Profiles and/or MICA

Comparisons with Other MICAs

The data for the Preventable Hospitalizations MICA has a few selection criteria differences from those normally used in other PAS related MICAs. Newborns are a special category of hospital discharges that are not included in the other MICAs that contain PAS data nor for the PAS-hospitalization indicators found on the Community Data Profiles. In the Preventable Hospitalizations MICA, newborns are included, except where inappropriate (exceptions can be viewed [here](#)).

One of the major differences in Preventable Hospitalization MICA compared to other PAS related MICAs is that some of the preventable conditions require the identification of procedures or secondary diagnoses, rather than relying exclusively on the principal diagnosis for each discharge. A list of the diagnoses and procedures used to define preventable hospitalizations can be found under **Diagnosis** on the query page. For data through September of 2015, all diagnoses and procedures were specified using the International Classification of Diseases, Ninth Revision (ICD-9-CM).

Preventable Hospitalizations may “require the identification of procedures or secondary diagnoses, rather than relying exclusively on the principal diagnosis for each discharge,” which may lead to different counts for the same indicator in other relevant MICAs. Additionally, hospitalizations are considered preventable only if the patient is less than 65 years of age. You’ll notice that older age groups are not available in this MICA, for that specific reason.

All the hyperlinks present on the query page, and specifically the documentation and metadata link, are a great place to start if you find you have questions. All Data MICAs have a Documentation/Metadata page and they can help answer many questions you might have related to source material, coding definitions, exclusions/limitations, among other items.

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Practice Exercises

March is Colorectal Cancer Awareness Month, and as a State Public Health Advisor you are asked to share Colorectal Cancer Incidence data for Missouri BRFSS regions for the 2010-2014 time period.

1. Which MICA would you use to find this information?

2. Which *Sites* did you use in combination to create the Colorectal Cancer category? (Hint: Expand the Digestive category.)

3. Which BRFSS Region has the highest count of Colorectal Cancer Incidence? The highest rate?

4. Kansas City Metro has a higher count than Northwest region, and yet the Northwest region has a higher rate. Please write a statement explaining why?

5. Which MICA could you use to look at the population differences between the Northwest region and KC Metro?

6. Generate a statistical significance map and use it to determine which BRFSS region has statistically higher rate compared to the state?

7. Build two tables, one using confidence interval of 99% and another confidence interval of 95%. Then using the side by side table comparison option, explain why the 99% confidence intervals are wider than 95% confidence intervals?

Visit <http://health.mo.gov/data/mica/MICA/solutions.html> to check the solution.

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About the MOPHIMS User Newsletter Group

The MOPHIMS User Group Newsletter was created in response to user requests for communication on updates to the MICA system, descriptions of new features, additional practice exercises, announcements of training opportunities, and any other new information about data that might help them perform their jobs more efficiently.

Newsletters will be published on a semi-annual basis. If you have ideas for content, please send them to Andrew.Hunter@health.mo.gov or Whitney.Coffey@health.mo.gov. We would especially like to feature stories describing your success at completing projects or obtaining grants using the MICA tools as well as interviews with public health professionals about your duties and how you use MICA to accomplish them.

Past issues are available at <http://health.mo.gov/data/mica/MICA/newsletters.html>.

Contributors:

Andy Hunter, Whitney Coffey, Kristina Johnson, Teresia Karuga, and Jeremy Rowles

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How to Sign Up or Opt Out

If you have enjoyed this newsletter, please feel free to share it with your colleagues and community partners. We encourage them to sign up for the MICA User Group by sending an email to MOPHIMSUserGroup@health.mo.gov with the subject line MOPHIMS User Group. This will let us know to send newsletters to them directly so they do not miss any information. Also, we may occasionally distribute time-sensitive information on topics such as training opportunities via e-mail if the newsletter is not scheduled for publication prior to a registration deadline. Finally, the MOPHIMS User Group list helps us track the types of organizations using the tools, which is one of our performance measures.

If you would like to opt out of the MOPHIMS User Group, please send an e-mail with Unsubscribe in the subject line to MOPHIMSUserGroup@health.mo.gov. PLEASE NOTE: Depending on your position title, you may still receive other types of e-mail messages from us. For example, we are requested to send training information to all LPHA Administrators, even if they have unsubscribed from the MOPHIMS User Group.

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